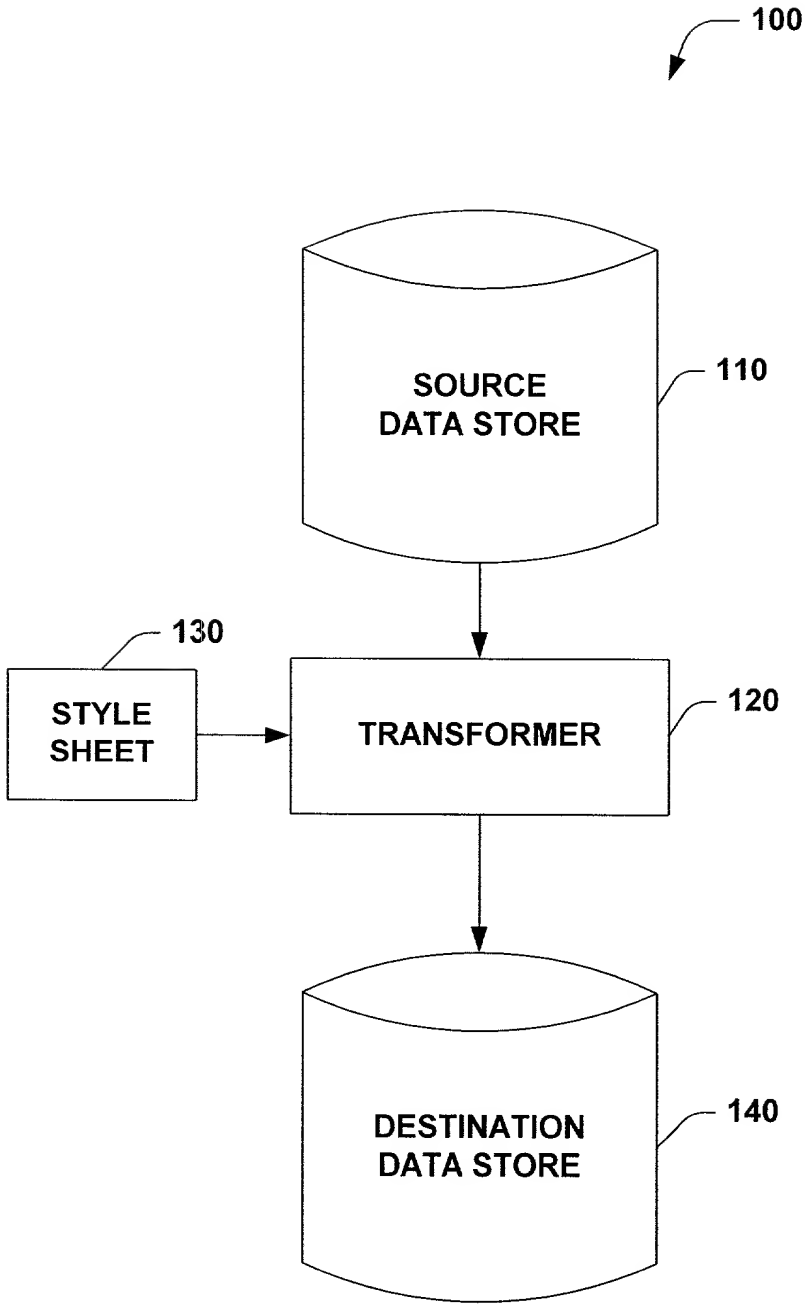

100
SOURCE
DATA STORE
110
130
STYLE
SHEET
TRANSFORMER
120
DESTINATION
DATA STORE
140

Fig. 1

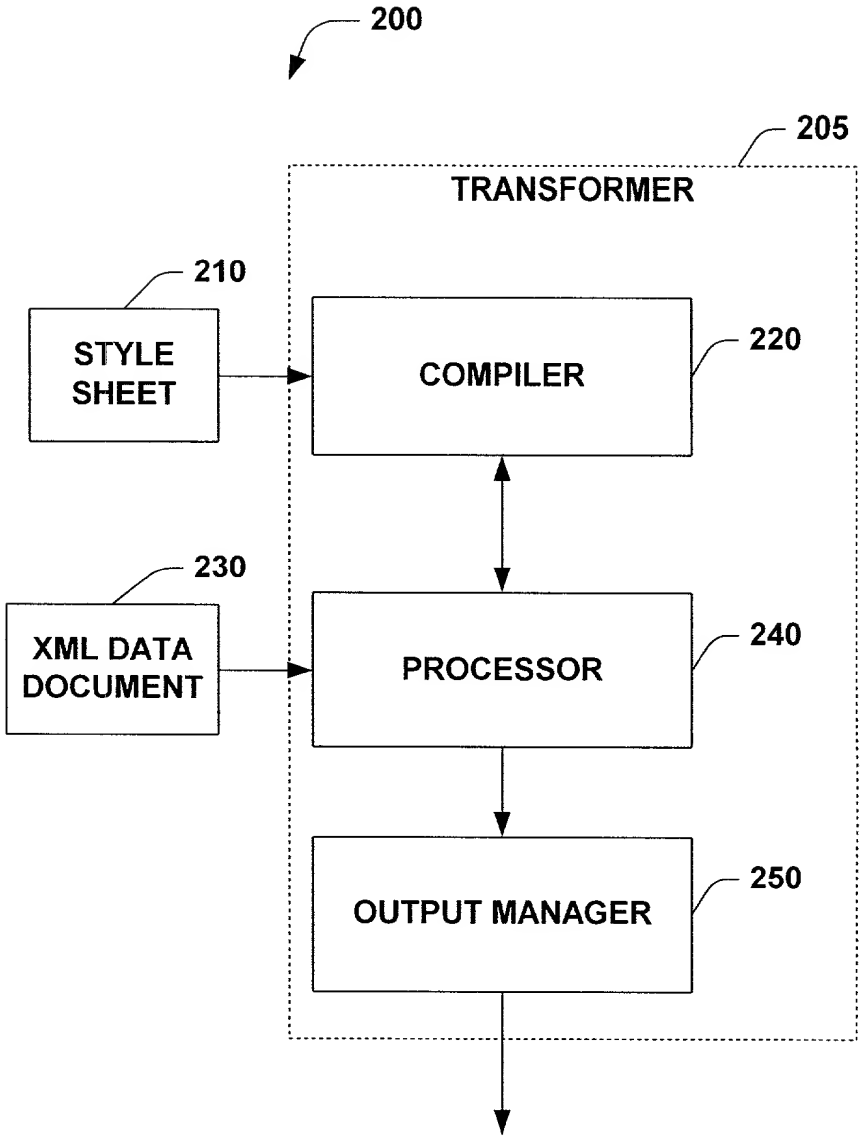

200
205
TRANSFORMER
210
STYLE SHEET
COMPILER
220
230
XML DATA DOCUMENT
PROCESSOR
240
OUTPUT MANAGER
250

Fig. 2

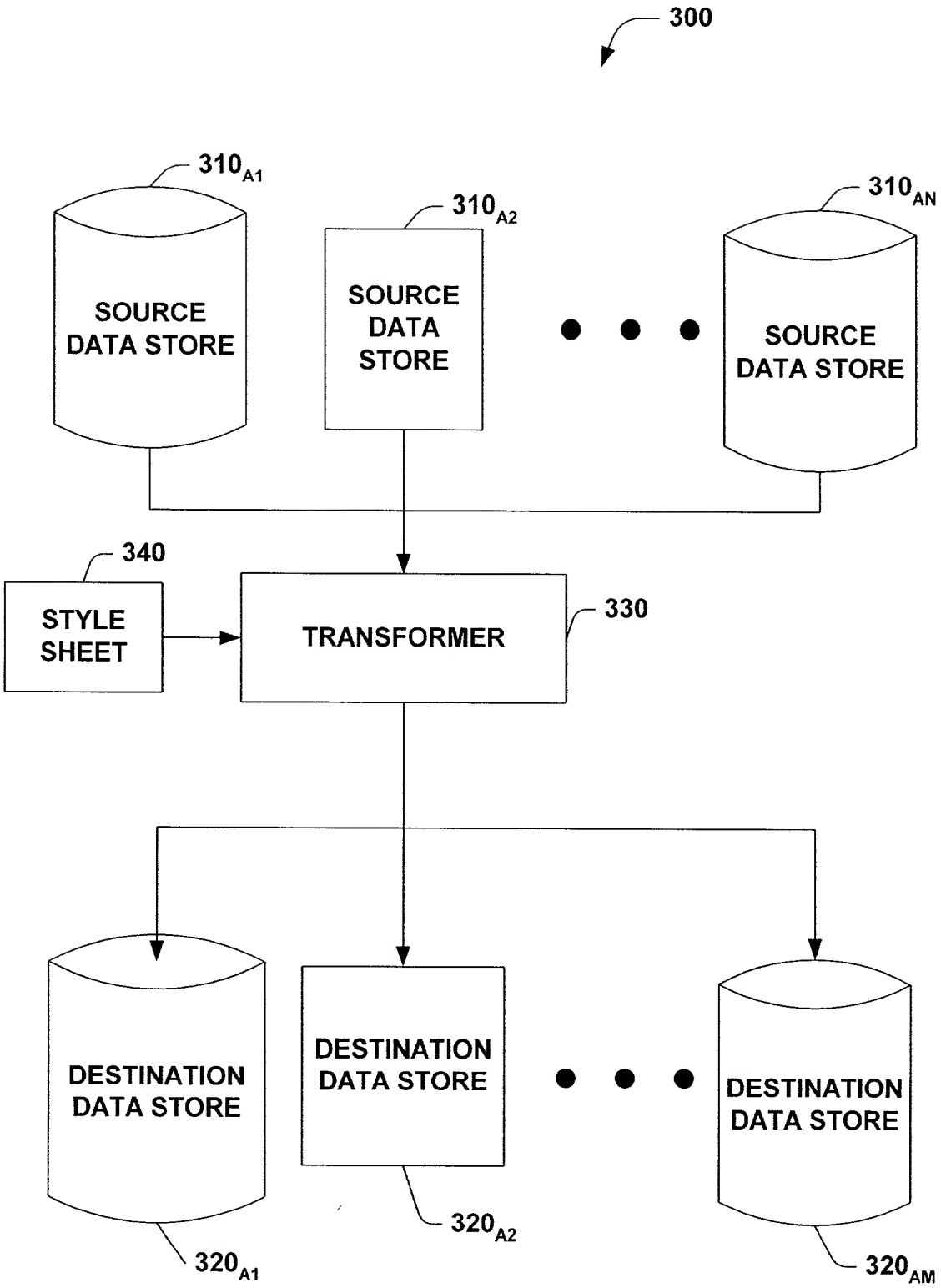

300
310A1
SOURCE DATA STORE
310A2
SOURCE DATA STORE
310AN
SOURCE DATA STORE
340
STYLE SHEET
TRANSFORMER
330
DESTINATION DATA STORE
DESTINATION DATA STORE
DESTINATION DATA STORE
320A1
320A2
320AM

FIG. 3

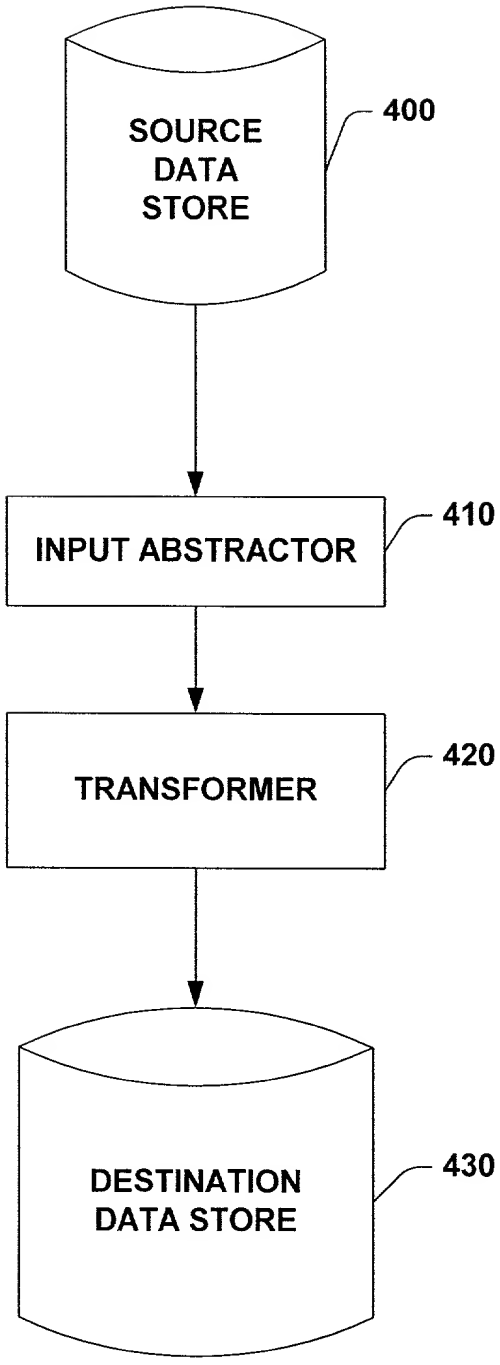

SOURCE
DATA
STORE
400
INPUT ABSTRACTOR
410
TRANSFORMER
420
DESTINATION
DATA STORE
430

FIG. 4

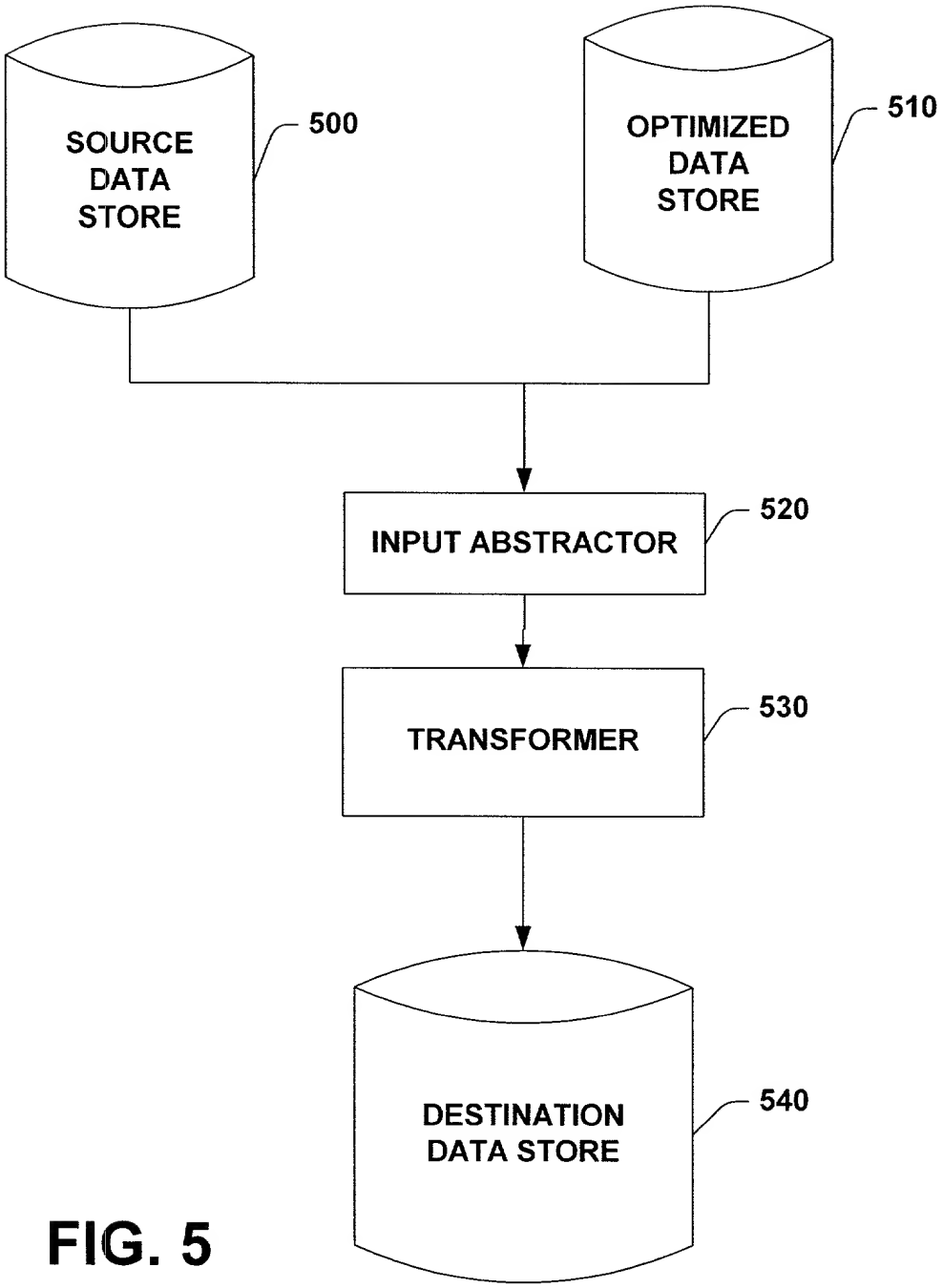
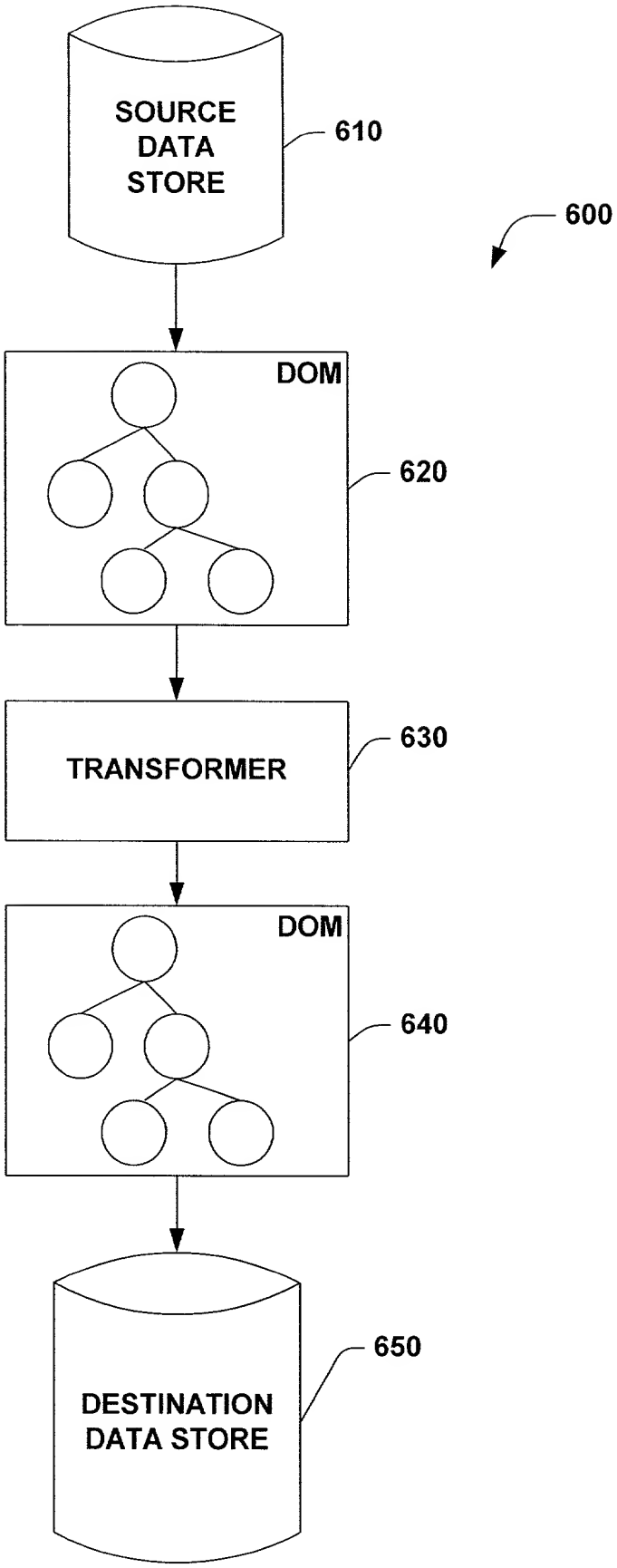

SOURCE DATA STORE
500
OPTIMIZED DATA STORE
510
INPUT ABSTRACTOR
520
TRANSFORMER
530
DESTINATION DATA STORE
540

FIG. 5



Prior Art
Fig. 6

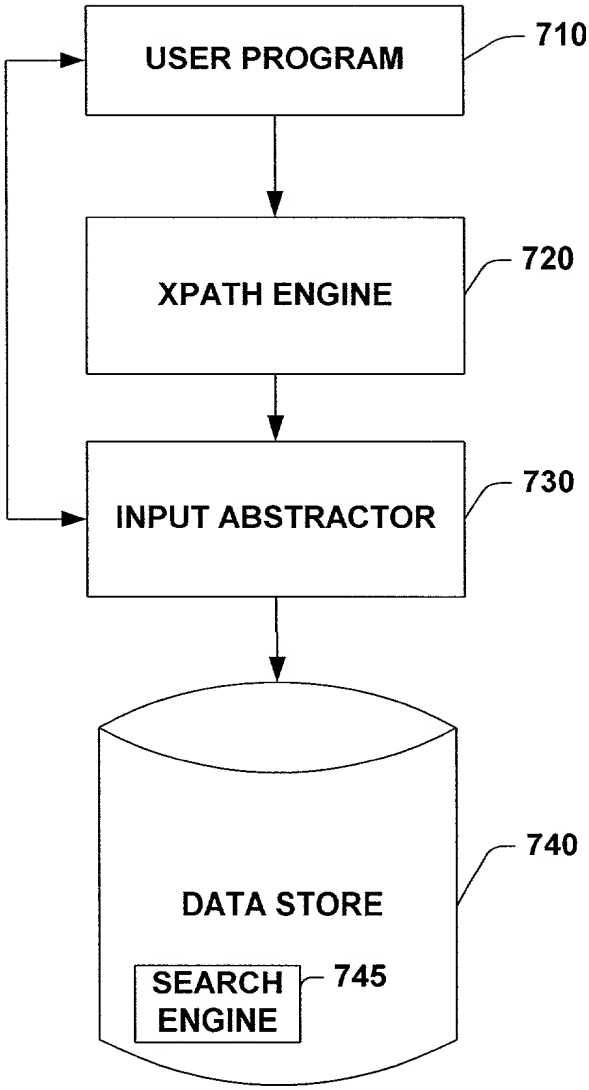

USER PROGRAM
710
XPATH ENGINE
720
INPUT ABSTRACTOR
730
DATA STORE
740
SEARCH ENGINE
745

FIG. 7

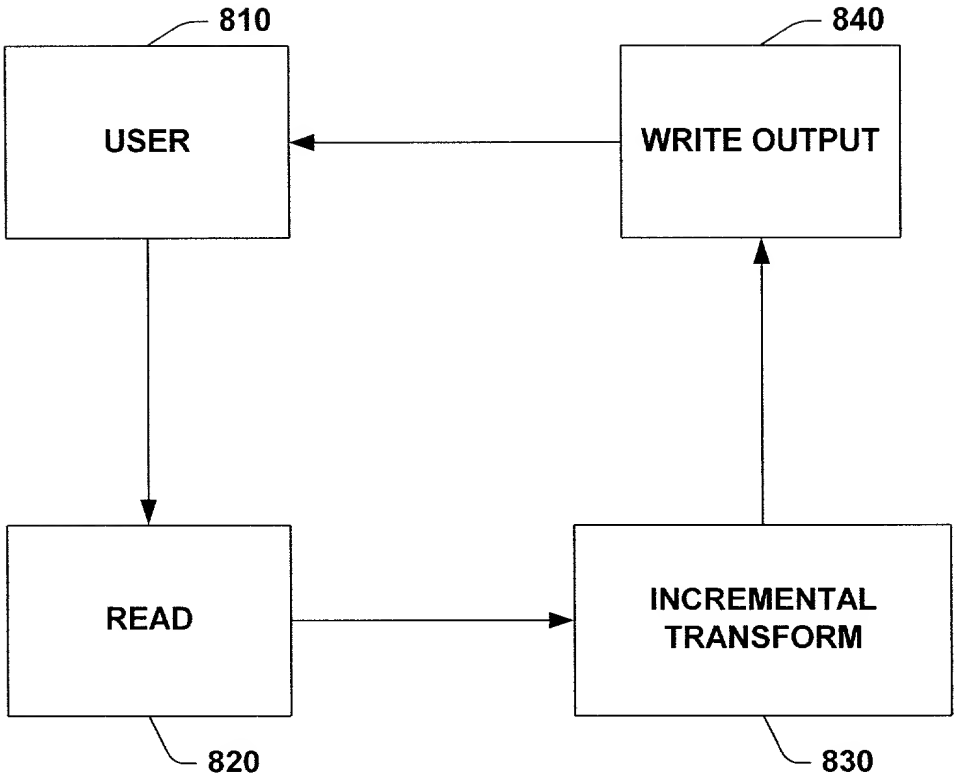

810
USER
840
WRITE OUTPUT
READ
820
INCREMENTAL TRANSFORM
830

FIG. 8

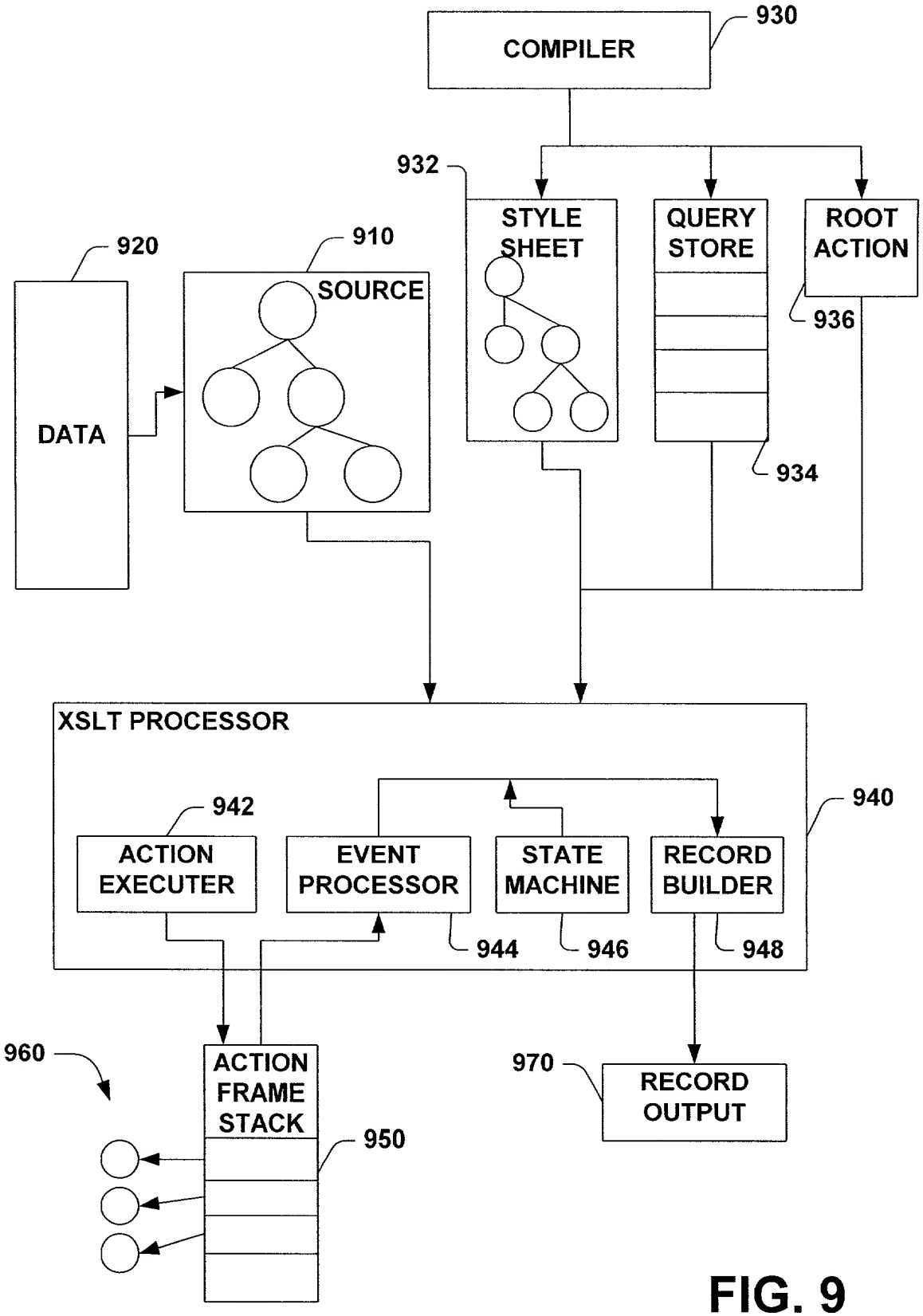

COMPILER
930
932
STYLE SHEET
QUERY STORE
ROOT ACTION
936
934
920
910
SOURCE
DATA
XSLT PROCESSOR
940
942
ACTION EXECUTER
EVENT PROCESSOR
STATE MACHINE
RECORD BUILDER
944
946
948
960
ACTION FRAME STACK
950
970
RECORD OUTPUT

FIG. 9

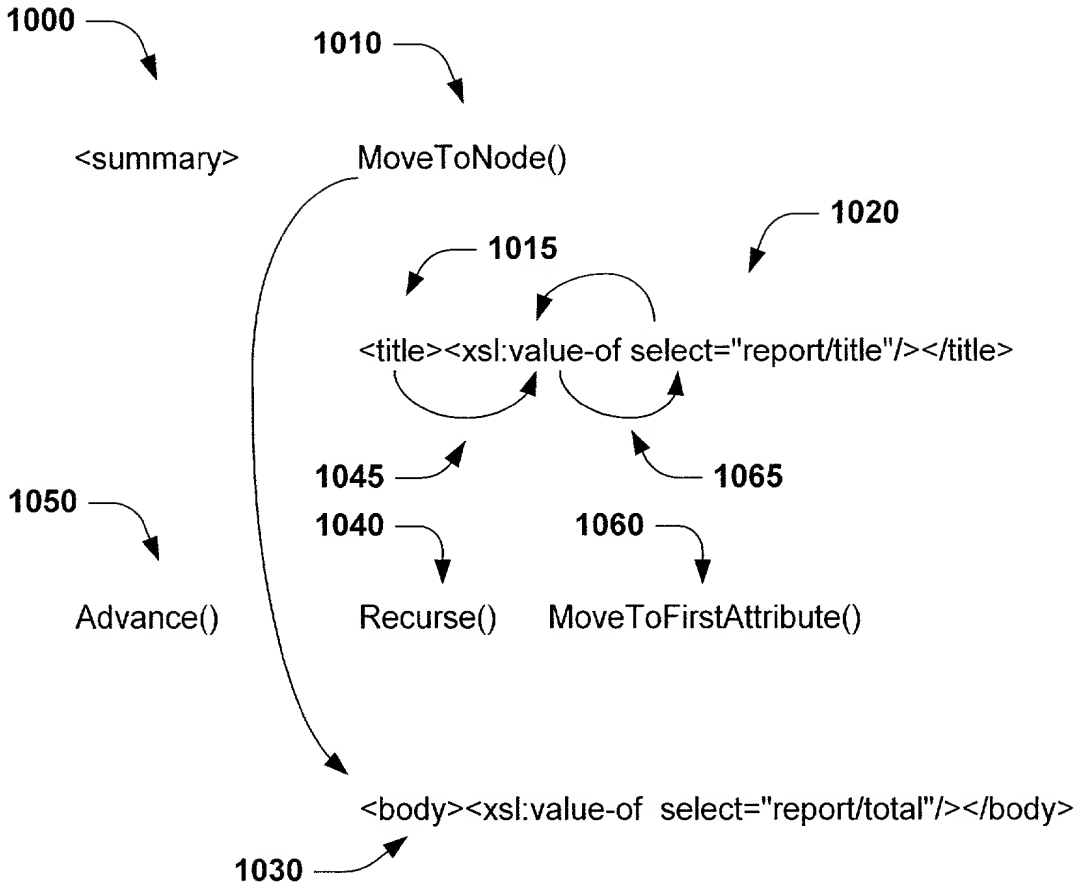

1000
1010
<summary>
MoveToNode()
1020
1015
<title><xsl:value-of select="report/title"/></title>
1045
1065
1050
1040
1060
Advance()
Recurse()
MoveToFirstAttribute()
<body><xsl:value-of select="report/total"/></body>
1030

FIG. 10

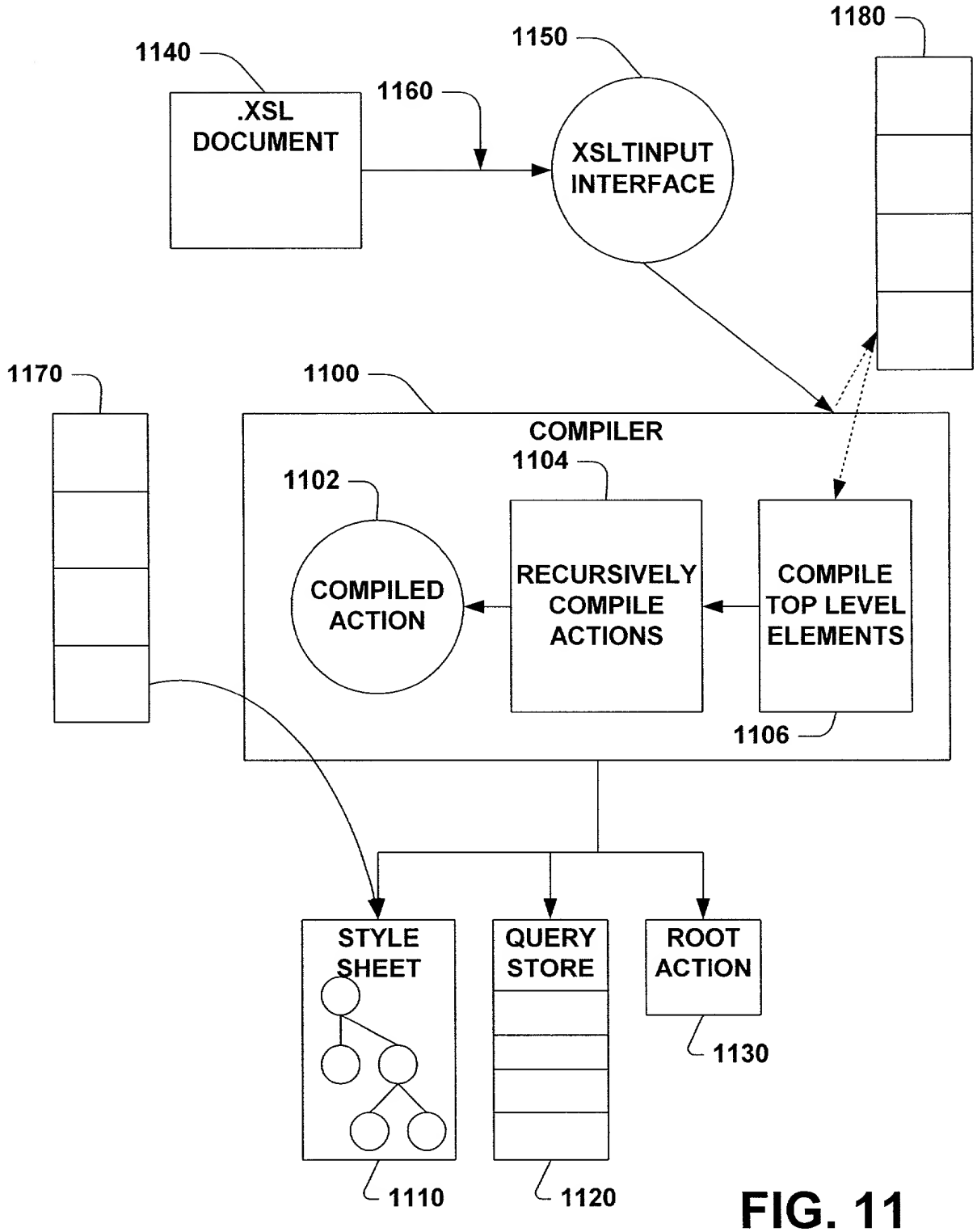

1140
.XSL DOCUMENT
1160
1150
XSLTINPUT INTERFACE
1180
1170
1100
COMPILER
1102
COMPILED ACTION
1104
RECURSIVELY COMPILE ACTIONS
COMPILE TOP LEVEL ELEMENTS
1106
STYLE SHEET
QUERY STORE
ROOT ACTION
1130
1110
1120

FIG. 11

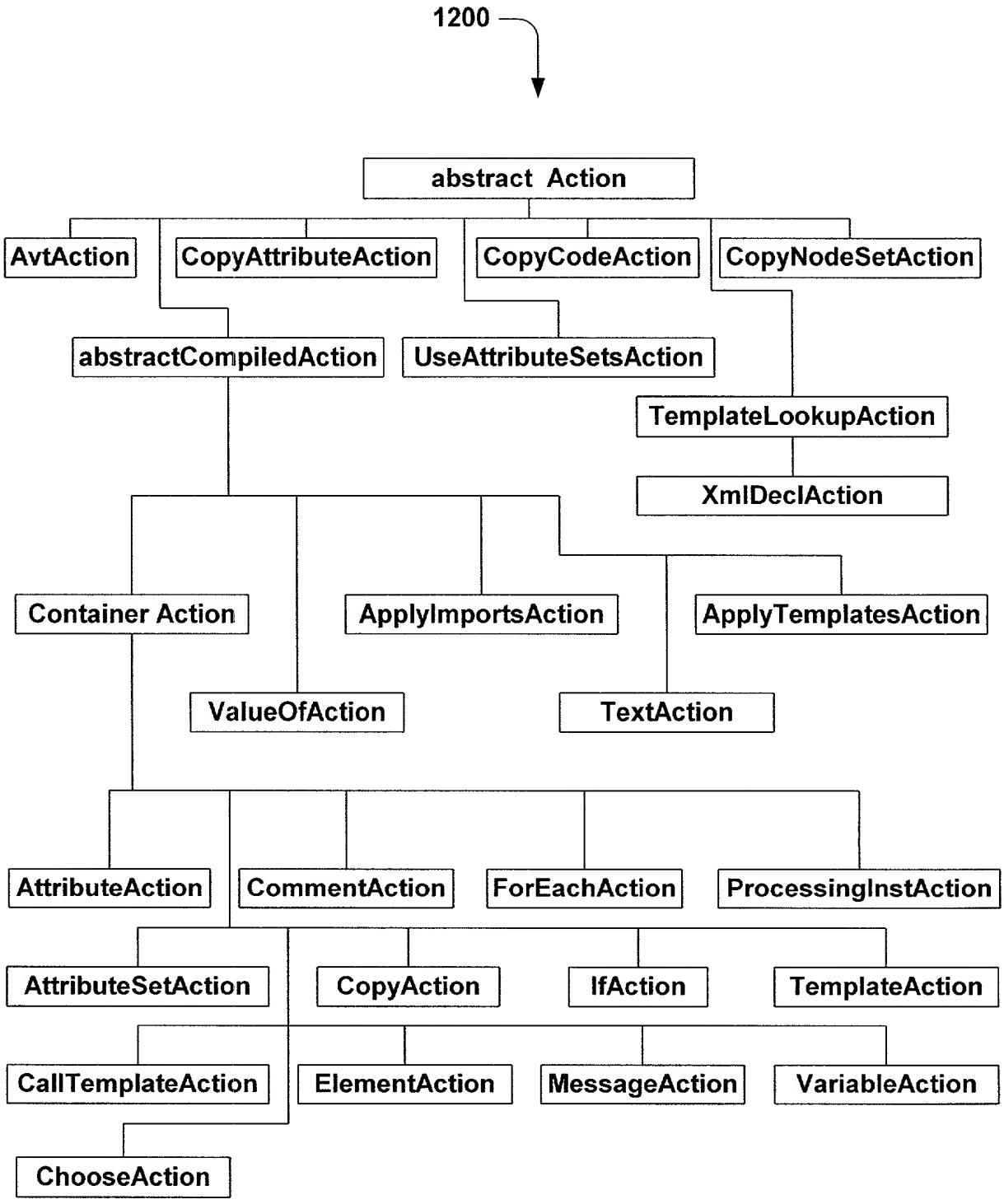

1200
abstract Action
AvtAction
CopyAttributeAction
CopyCodeAction
CopyNodeSetAction
abstractCompiledAction
UseAttributeSetsAction
TemplateLookupAction
XmlDeclAction
Container Action
ApplyImportsAction
ApplyTemplatesAction
ValueOfAction
TextAction
AttributeAction
CommentAction
ForEachAction
ProcessingInstAction
AttributeSetAction
CopyAction
IfAction
TemplateAction
CallTemplateAction
ElementAction
MessageAction
VariableAction
ChooseAction

Fig. 12

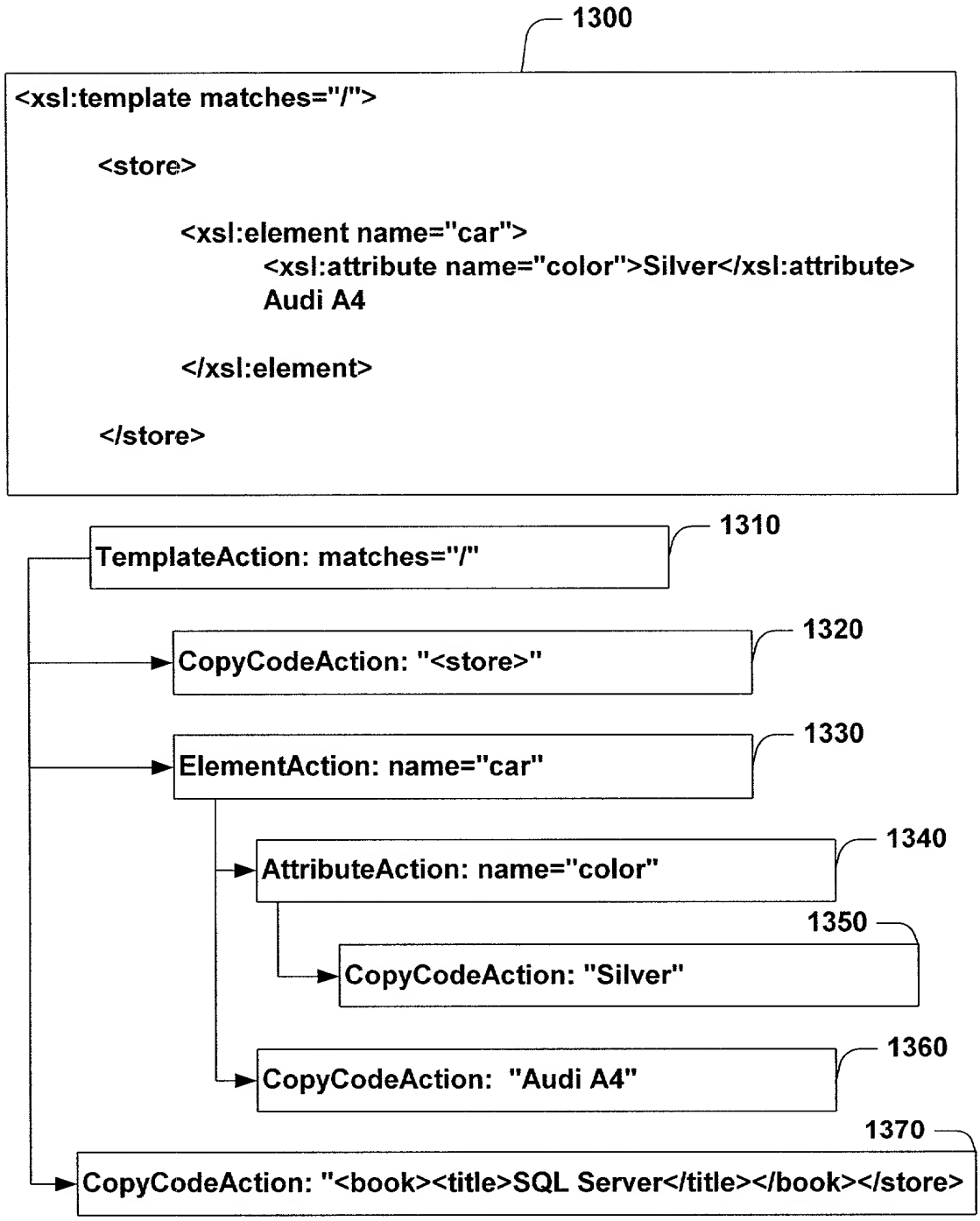

1300
<xsl:template matches="/">
<store>
<xsl:element name="car">
<xsl:attribute name="color">Silver</xsl:attribute>
Audi A4
</xsl:element>
</store>
1310
TemplateAction: matches="/"
1320
CopyCodeAction: "<store>"
1330
ElementAction: name="car"
1340
AttributeAction: name="color"
1350
CopyCodeAction: "Silver"
1360
CopyCodeAction: "Audi A4"
1370
CopyCodeAction: "<book><title>SQL Server</title></book></store>"

Fig. 13

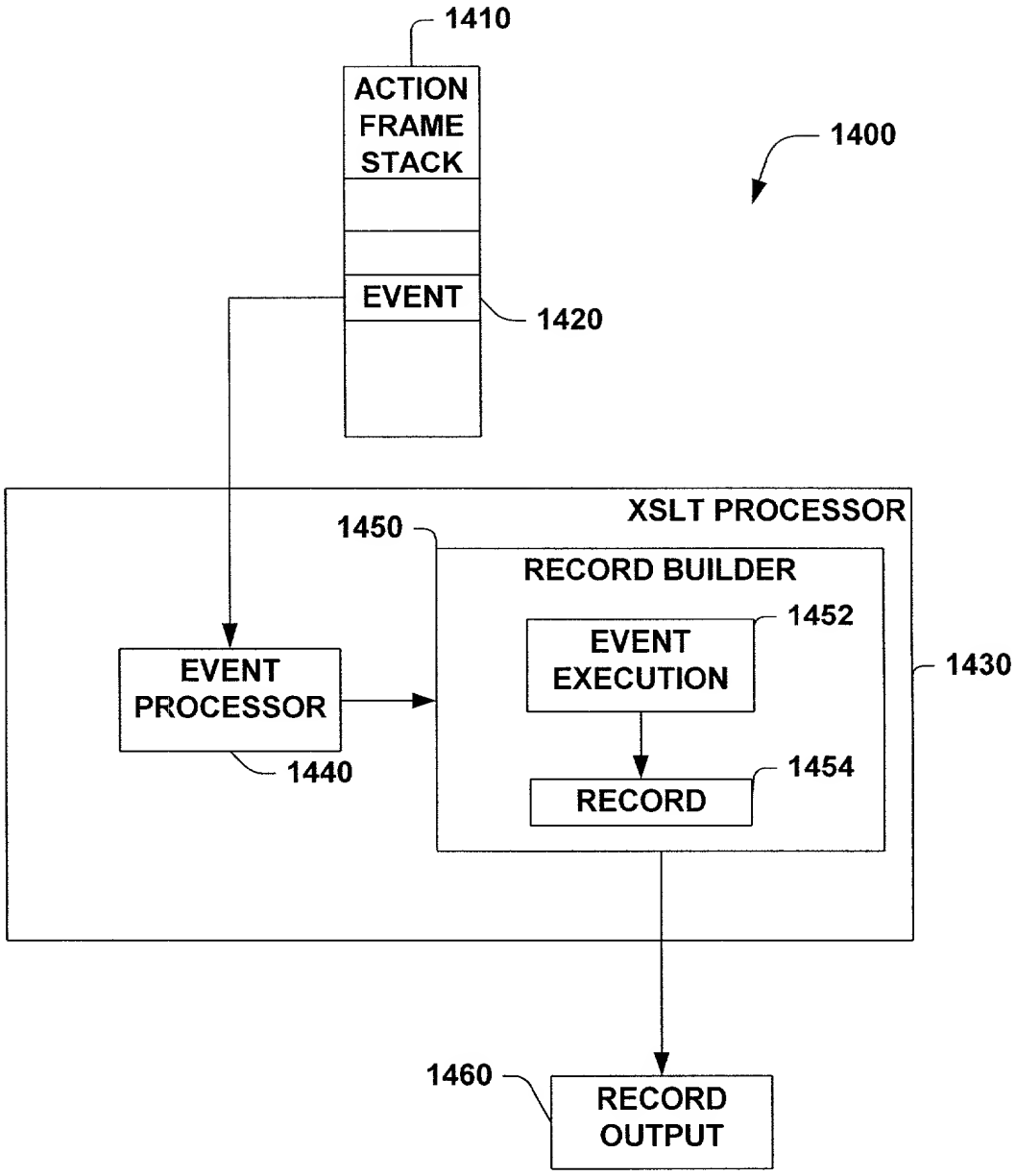

1410
ACTION FRAME STACK
1400
EVENT
1420
XSLT PROCESSOR
1450
RECORD BUILDER
1452
EVENT EXECUTION
1430
EVENT PROCESSOR
1440
1454
RECORD
1460
RECORD OUTPUT

FIG. 14

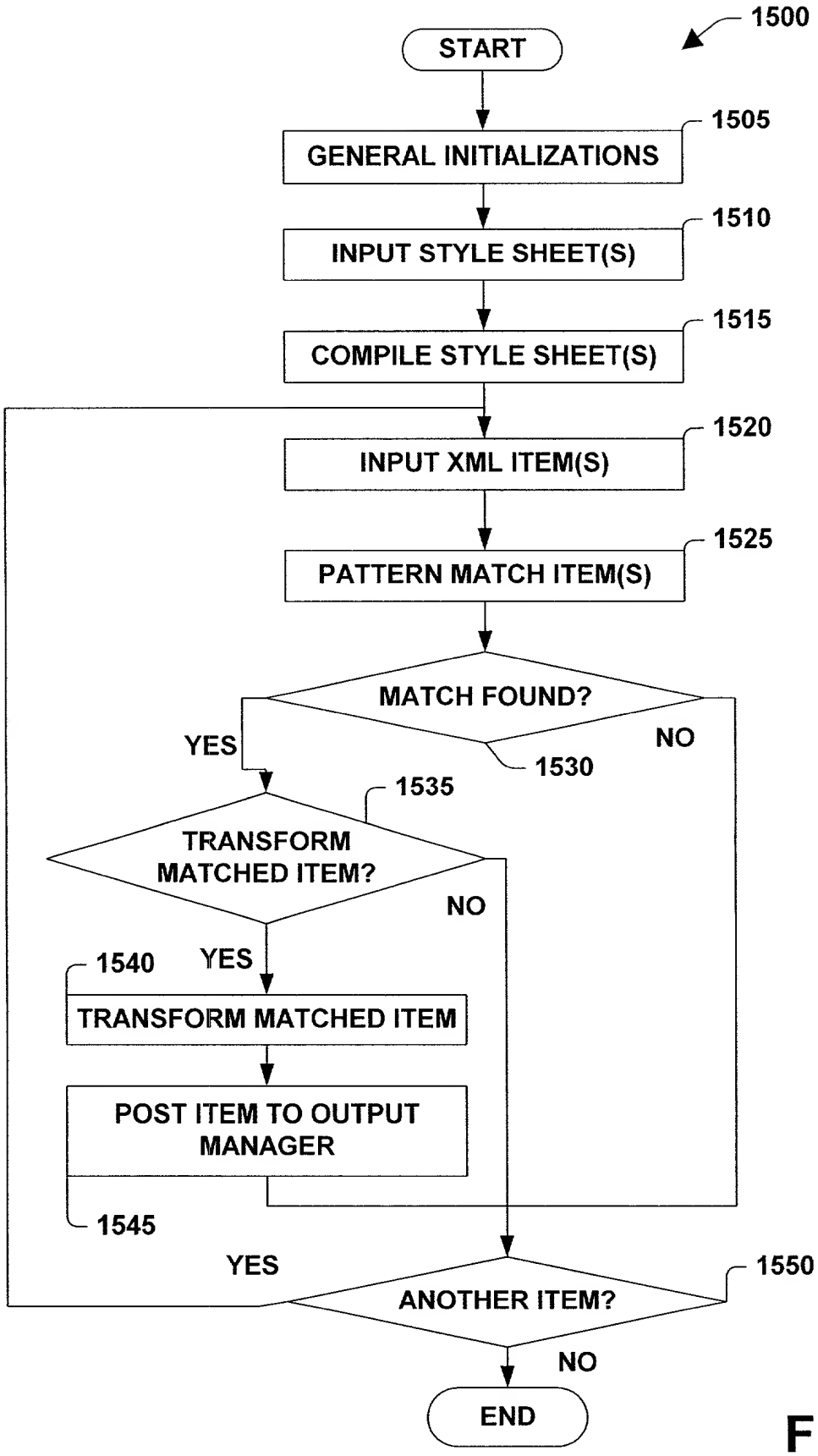

1500
START
1505
GENERAL INITIALIZATIONS
1510
INPUT STYLE SHEET(S)
1515
COMPILE STYLE SHEET(S)
1520
INPUT XML ITEM(S)
1525
PATTERN MATCH ITEM(S)
MATCH FOUND?
1530
YES
NO
1535
TRANSFORM MATCHED ITEM?
NO
YES
1540
TRANSFORM MATCHED ITEM
POST ITEM TO OUTPUT MANAGER
1545
YES
1550
ANOTHER ITEM?
NO
END

FIG. 15

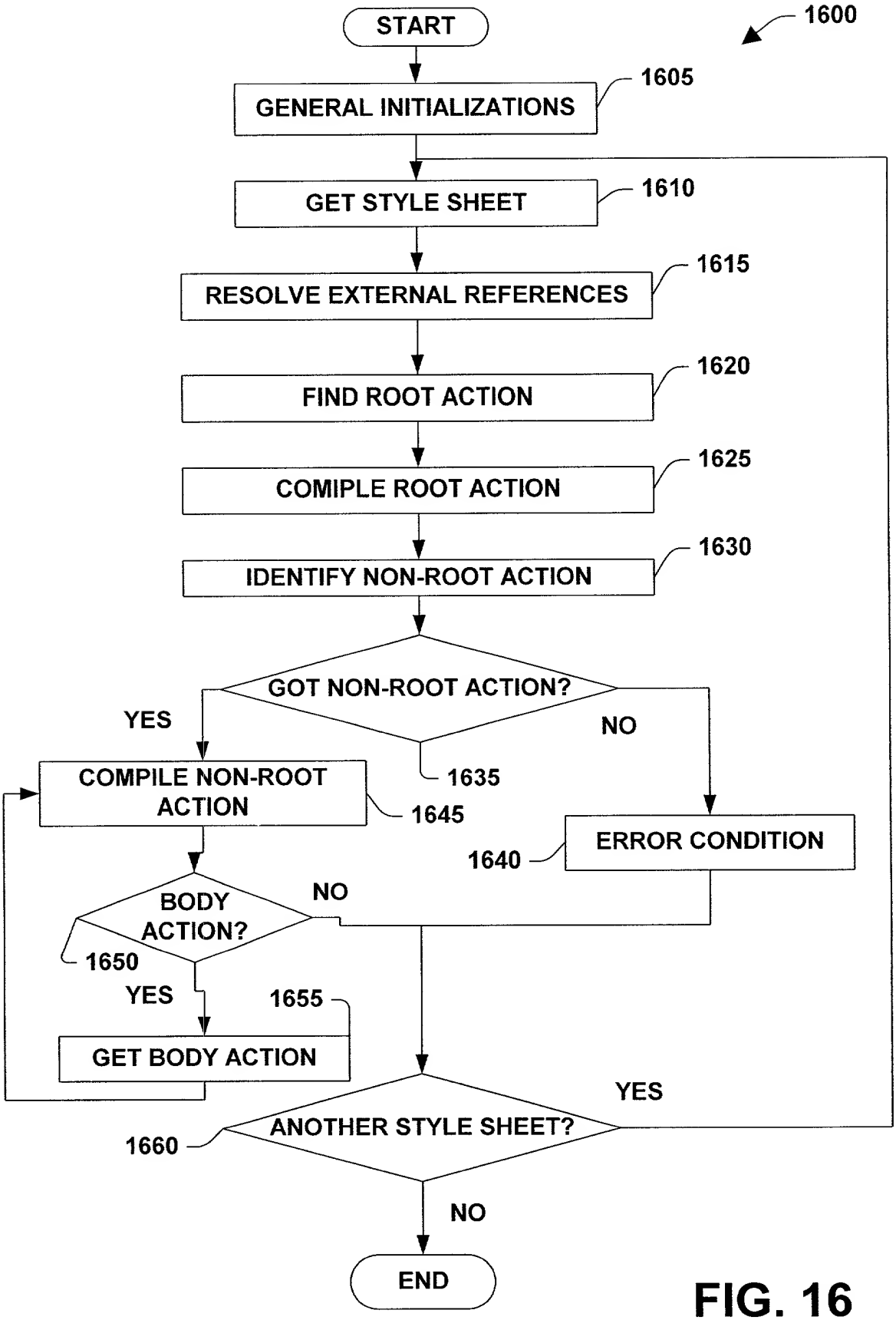

1600
START
GENERAL INITIALIZATIONS
1605
GET STYLE SHEET
1610
RESOLVE EXTERNAL REFERENCES
1615
FIND ROOT ACTION
1620
COMIPLE ROOT ACTION
1625
IDENTIFY NON-ROOT ACTION
1630
GOT NON-ROOT ACTION?
YES
NO
1635
COMPILE NON-ROOT ACTION
1645
ERROR CONDITION
1640
BODY ACTION?
NO
1650
YES
1655
GET BODY ACTION
ANOTHER STYLE SHEET?
YES
1660
NO
END

FIG. 16

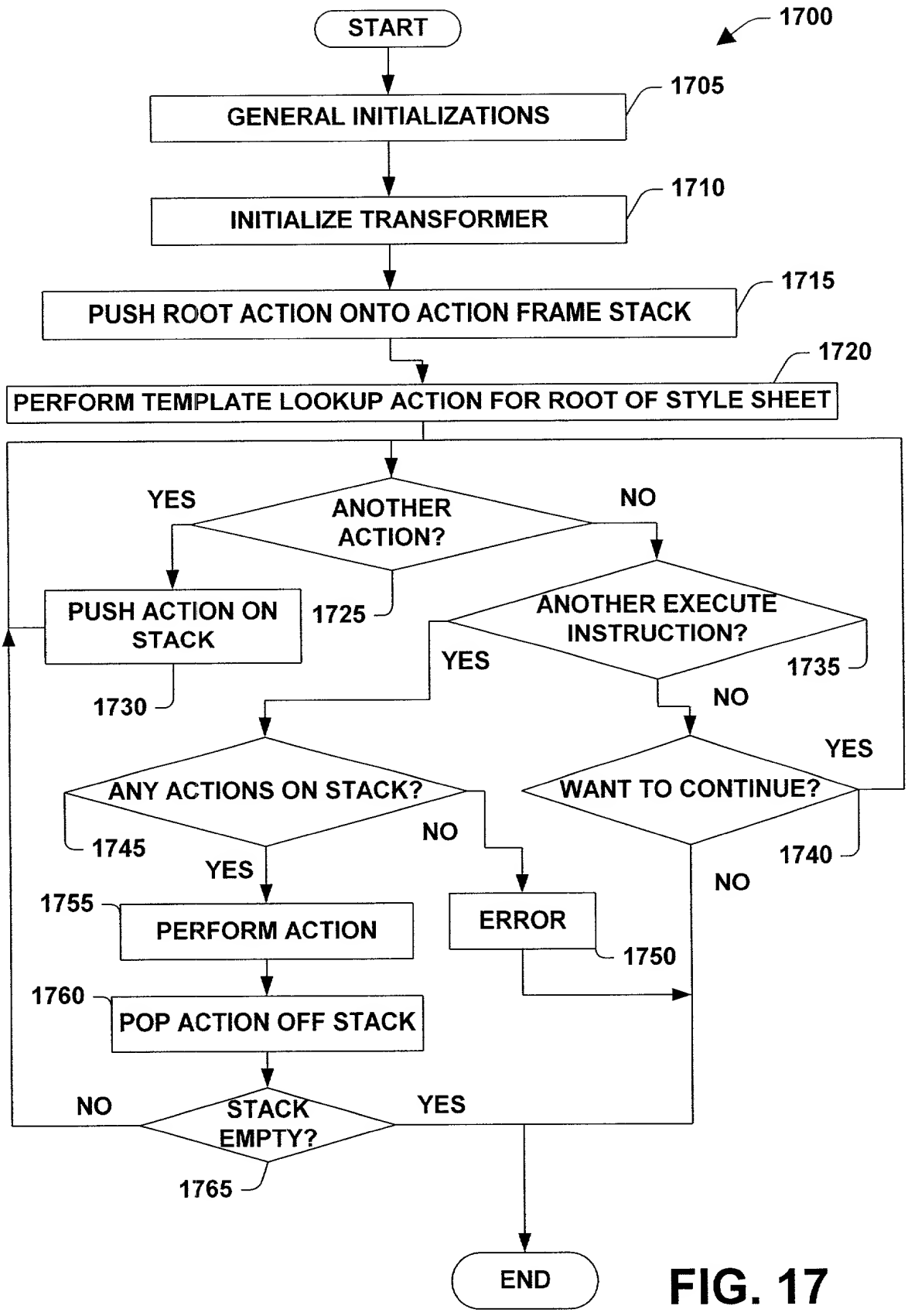

START
1700
GENERAL INITIALIZATIONS
1705
INITIALIZE TRANSFORMER
1710
PUSH ROOT ACTION ONTO ACTION FRAME STACK
1715
PERFORM TEMPLATE LOOKUP ACTION FOR ROOT OF STYLE SHEET
1720
YES
ANOTHER ACTION?
NO
PUSH ACTION ON STACK
1725
1730
ANOTHER EXECUTE INSTRUCTION?
1735
YES
NO
ANY ACTIONS ON STACK?
1745
NO
YES
WANT TO CONTINUE?
YES
1740
NO
1755
PERFORM ACTION
ERROR
1750
1760
POP ACTION OFF STACK
NO
STACK EMPTY?
YES
1765
END

FIG. 17

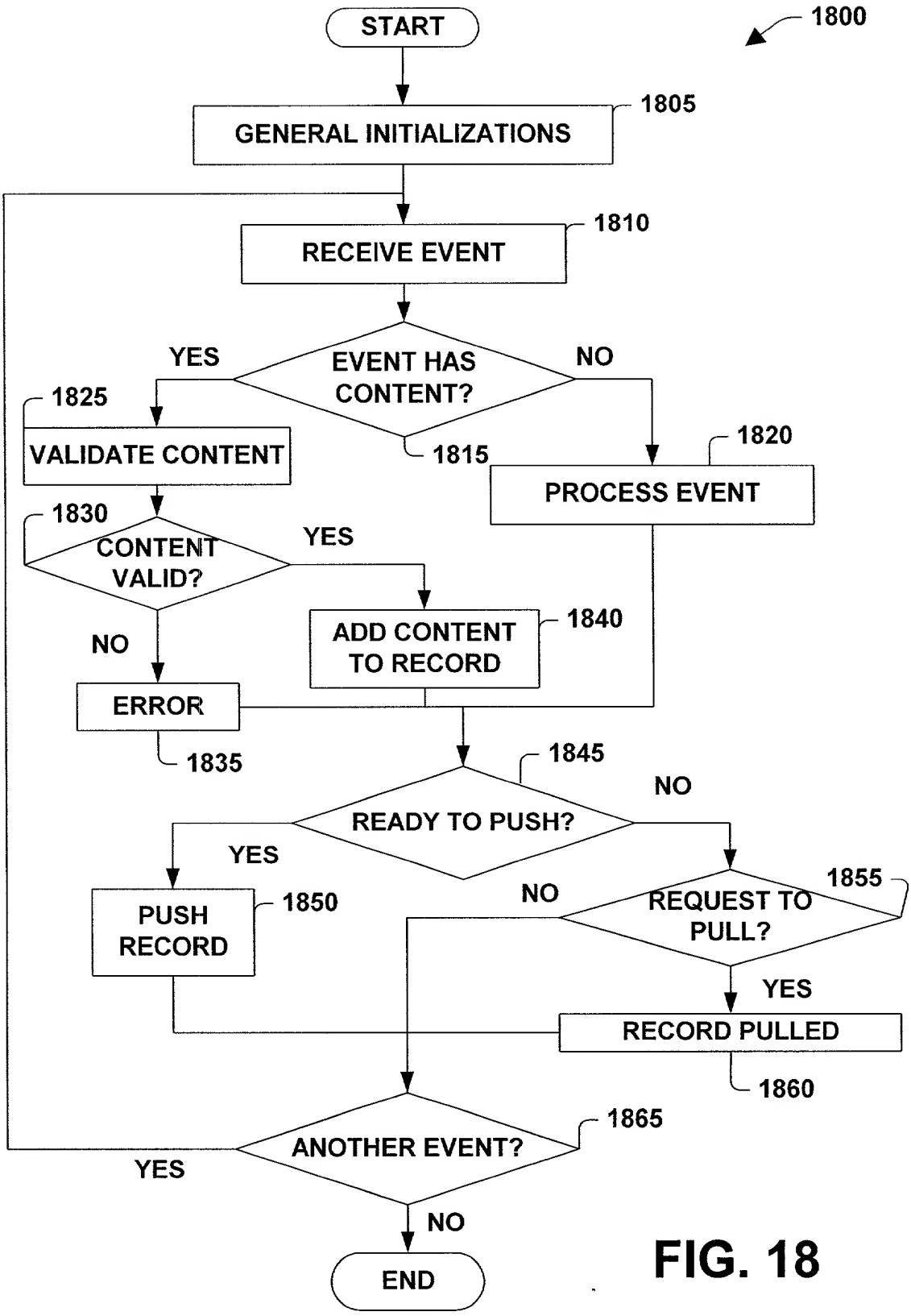

1800
START
GENERAL INITIALIZATIONS
1805
RECEIVE EVENT
1810
EVENT HAS CONTENT?
YES
NO
1815
1825
VALIDATE CONTENT
1820
PROCESS EVENT
1830
CONTENT VALID?
YES
NO
ADD CONTENT TO RECORD
1840
ERROR
1835
1845
READY TO PUSH?
NO
YES
PUSH RECORD
1850
NO
1855
REQUEST TO PULL?
YES
RECORD PULLED
1860
1865
ANOTHER EVENT?
YES
NO
END

FIG. 18

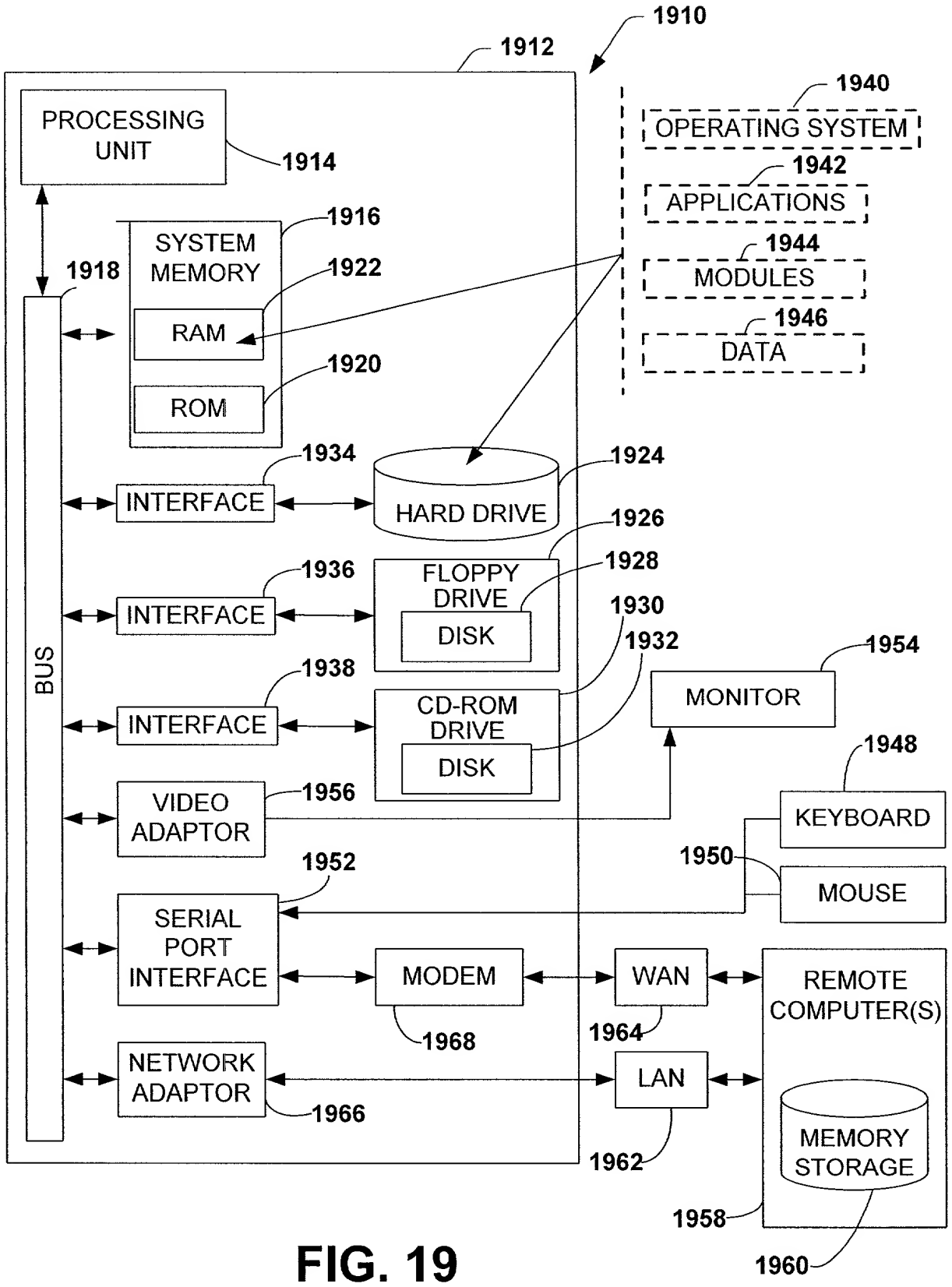

1910
1912
PROCESSING UNIT
1914
1940
OPERATING SYSTEM
1942
APPLICATIONS
1944
MODULES
1946
DATA
1916
SYSTEM MEMORY
1918
1922
RAM
1920
ROM
1934
INTERFACE
1924
HARD DRIVE
1926
1936
INTERFACE
FLOPPY DRIVE
1928
DISK
1930
1932
1938
INTERFACE
CD-ROM DRIVE
DISK
1954
MONITOR
1948
KEYBOARD
1950
MOUSE
BUS
VIDEO ADAPTOR
1956
1952
SERIAL PORT INTERFACE
MODEM
1968
WAN
1964
REMOTE COMPUTER(S)
NETWORK ADAPTOR
1966
LAN
1962
MEMORY STORAGE
1958
1960

FIG. 19

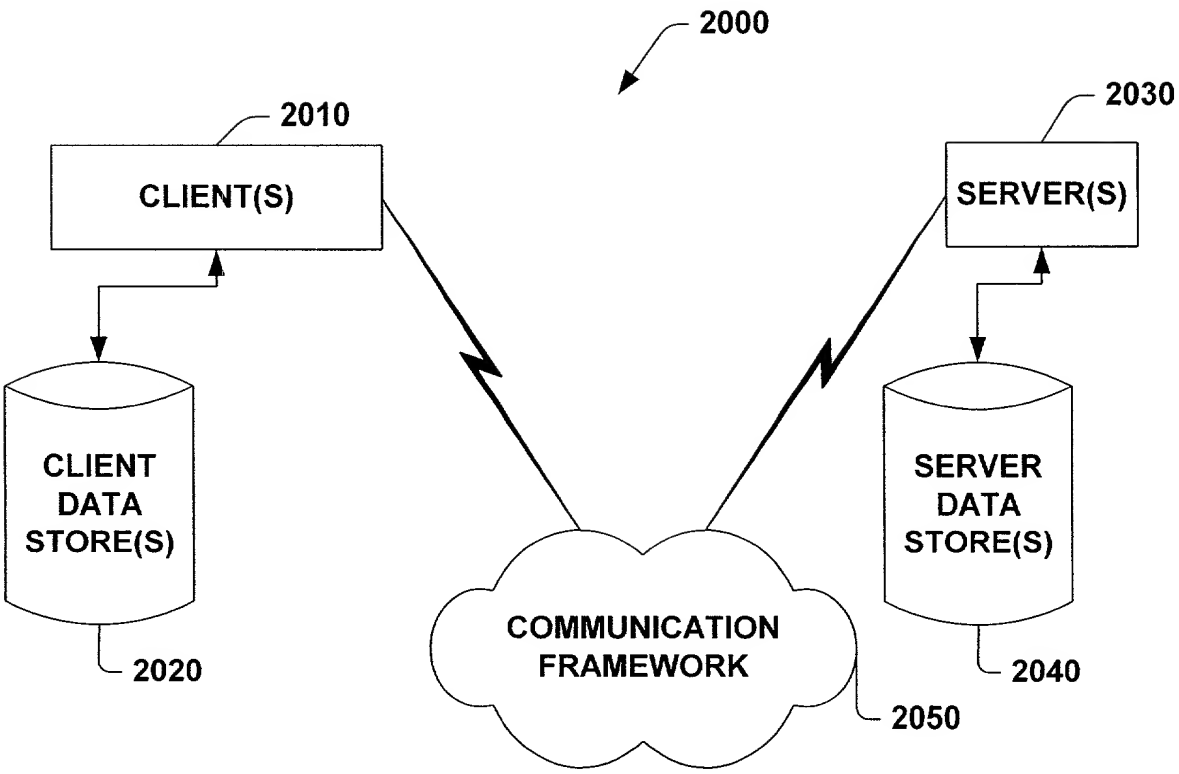

2000
2010
CLIENT(S)
2030
SERVER(S)
CLIENT DATA STORE(S)
SERVER DATA STORE(S)
COMMUNICATION FRAMEWORK
2020
2040
2050

FIG. 20

09604.3528-00000

2100

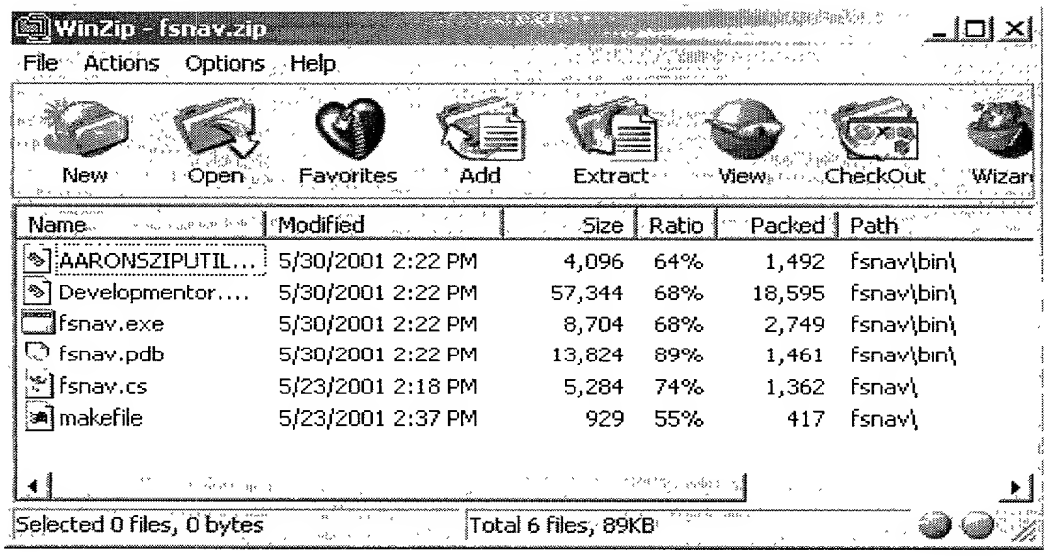


FIG. 21

```
<contents>
  <fsnav_x005C_bin path="fsnav\bin\"
    compressedSize="0" uncompressedSize="0"
    lastModified="05/30/01 14:22:40" />
  <aaronsziputilslib.dll
    path="fsnav\bin\AARONSZIPUTILSLib.dll"
    compressedSize="1492" uncompressedSize="4096"
    lastModified="05/30/01 14:22:34" />
  <developmentor.xml.dll
    path="fsnav\bin\Developmentor.Xml.dll"
    compressedSize="18595" uncompressedSize="57344"
    lastModified="05/30/01 14:22:38" />
  <fsnav.exe path="fsnav\bin\fsnav.exe"
    compressedSize="2749" uncompressedSize="8704"
    lastModified="05/30/01 14:22:40" />
  <fsnav.pdb path="fsnav\bin\fsnav.pdb"
    compressedSize="1461" uncompressedSize="13824"
    lastModified="05/30/01 14:22:40" />
  <fsnav.cs path="fsnav\fsnav.cs"
    compressedSize="1362" uncompressedSize="5284"
    lastModified="05/23/01 14:18:40" />
  <makefile path="fsnav\makefile"
    compressedSize="417" uncompressedSize="929"
    lastModified="05/23/01 14:37:32" />
  <fsnav path="fsnav\"
    compressedSize="0" uncompressedSize="0"
    lastModified="05/30/01 14:22:38" />
</contents>
```

FIG. 22

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